

TRS-80® MODEL III MICRO- COMPUTER SYSTEM



Start-Up

The entire system (Computer and peripherals) should be OFF and the disk drives empty.

1. Turn all peripherals ON.
2. Turn the Computer ON.
3. Insert a System diskette into Drive 0. Close the drive door.
4. Press the RESET button. Once the system is initialized, TRSDOS will load and take control.
5. To start Disk BASIC, type BASIC (ENTER)
6. When BASIC asks HOW MANY FILES? type in the number of concurrent files you need or press (ENTER) (three concurrent files).
7. Then BASIC will ask MEMORY SIZE? Answer by typing in a specific number or press (ENTER) to enter Disk BASIC.
8. The Disk BASIC start-up message will appear followed by the READY prompt. The Computer is now ready for use.

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TRSDOS

Commands and Utilities

APPEND Adds one disk file onto the end of another.
APPEND FTW/TXT MORTX/TXT

ATTRIB Changes protection of specified file. (I or V, ACC, UPD, PROT)
ATTRIB OLD/DATE (I, ACC=JUL14, UPD=HOUSE, PROT=READ)

AUTO command Automatically executes the specified TRSDOS command each time TRSDOS starts up. (AUTO by itself erases the automatic command.)
AUTO CLOCK AUTO BASIC AUTO

BACKUP Duplicates a system or data diskette.
BACKUP BACKUP :0 :1

BUILD Creates an automatic command input file.
BUILD JOBFIL

BASIC Loads Disk BASIC interpreter. BASIC * allows recovery of the program that was in memory before the return to TRSDOS.
BASIC BASIC *

CLEAR Clears user memory and set top memory address.
CLEAR (START=9000, END=2A000, MEN=7000)
CLEAR

CLOCK Turns real-time clock display on/off.
CLOCK (ON) CLOCK CLOCK (OFF)

CLS Clears the screen.
CLS

CONVERT Model I to Model III program/data file conversion.
CONVERT

COPY oldfile newfile Copies a file.
COPY FILE 1/BAS UPDFL/BAS
COPY FILE/A FILE/A:1 COPY FILEA/BAS:0 :1

CREATE filename(LRL=aaa, REC=bbb) Creates a preallocated file.
CREATE JOBFIL (LRL=256, REC=50)

DATE newdate Sets or displays the current date.
DATE 07/18/90 DATE

DEBUG Starts debug monitor.
DEBUG (turns monitor ON) Q (turns monitor OFF)

-80 MODEL

DIR :d(INV, SYS, PRT) Lists the diskette directory (INVisible or SYStem) on drive *d* on the Display or Printer (PRT).
DIR :1 (INV) DIR :0 (PRT)

DO *command-line* Begin auto command input from disk file.
DO BEGIN

DUAL (*switch*) Duplicates output to video and printer.
DUAL (ON) DUAL DUAL (OFF)

DUMP *file* Dumps content of RAM into a machine-language program disk file. (START = *aaaa*, END = *bbbb*, TRA = *cccc*, RELO = *dddd*)
DUMP DATA/CIM:1 (START = 8000, END = 8050)

ERROR *number* Displays an error message.
ERROR 47

FORMS (WIDTH = *aaa*, LINES = *bbb*) Set printer parameters.
FORMS (WIDTH = 80, LENGTH = 56)

FORMAT Initializes a diskette into tracks and sectors.
FORMAT :1 FORMAT

FREE Lists a diskette's allocation map to the Display or Printer (PRT).
FREE :1 FREE :0 (PRT)

HELP *command* Explanation of TRSDOS command.
HELP BACKUP

KILL *file*/EXT:*d* Deletes a file from directory; frees space allocated to that file.
KILL FL/BAS:1 KILL /CHD:0

LIB Lists library commands.
LIB

LIST *file* (PRT, SLOW, ASCII) Lists contents of a file to the Display or Printer.
LIST PROG1/TKT (PRT) LIST JOB1FILE/BLD (ASCII)

LOAD *file* Loads a machine-language file into memory.
LOAD GRAPHICS

LPC Special printer driver for some printers.
LPC

MASTER (DRIVE = *a*) Forces a drive to be the Master Read/Write drive. MASTER releases any drive defined as Master Drive.
MASTER (DRIVE = 1) MASTER

MEMTEST Test memory (ROM and RAM).
MEMTEST

III DISK SYS

PATCH file (ADD = *aaaa*, FIND = *bb*, CHG = *cc*)

Change the contents of a disk file.

PATCH JOBFIL/BLD (ADD=5280, FIND=C02C25,
CHG=C32C27)

PAUSE message Pauses for operator action or message.

PAUSE INSERT DISKETTE #21

PROT :*d* (PW, LOCK) Changes file and diskette passwords.

PROT :1 (PW, LOCK)

PURGE :*d* (file-type) Deletes files. (SYS, DATA, ALL, INV).

PURGE :1 (INV) PURGE :0

RELO file (ADD = *aaaa*) Changes location where program loads into memory.

RELO JOBFIL/BLD (ADD=6578)

RENAME file TO file Renames a file.

RENAME MRS/BAS TO MS/BAS

ROUTE (SOURCE = *aa*, DESTIN = *bb*) Routes I/O devices.

ROUTE (SOURCE=PR, DESTIN=DD)

SETCOM (OFF, WORD = *a*, BAUD = *bbb*, STOP = *c*, PARITY = *d*, mode) Sets up RS-232C communications or display status.

SETCOM (WORD=7, BAUD=300, STOP=1,
PARITY=0, WAIT) SETCOM

TAPE (S = *a*, D = *b*) Executes tape transfer operation.

TAPE (S=0, D=T)

TIME hh:mm:ss Resets or gets the time.

TIME 14:12:30 TIME

WP (DRIVE = *a*) Write-protects a diskette.

WP (DRIVE=1) WP

XFERSYS Transfers system files.

XFERSYS

TRSDOS Error Messages

| | |
|----|---|
| 0 | No Error Found |
| 1 | CRC Error During Disk I/O |
| 2 | Disk Drive Not In System |
| 3 | Lost Data During Disk I/O |
| 4 | CRC Error During Disk I/O |
| 5 | Disk Sector Not Found |
| 6 | Disk Drive Hardware Fault |
| 7 | **Undefined Error Code** |
| 8 | Disk Drive Not Ready |
| 9 | Illegal I/O Attempt |
| 10 | Required Command Parameter Not Found |
| 11 | Illegal Command Parameter |
| 12 | Time Out On Disk Drive |
| 13 | IO Attempt To Non System Disk |
| 14 | Write Fault On Disk I/O |
| 15 | Write Protected Disk |
| 16 | Illegal Logical File Number |
| 17 | Directory Read Error |
| 18 | Directory Write Error |
| 19 | Invalid File Name |
| 20 | GAT Read Error |
| 21 | GAT Write Error |
| 22 | HIT Read Error |
| 23 | HIT Write Error |
| 24 | File Not Found |
| 25 | File Access Denied Due To Password Protection |
| 26 | Directory Space Full |
| 27 | Disk Space Full |
| 28 | Attempt To Read Past EOF |
| 29 | Attempt to Read Outside of File Limits |
| 30 | No More Extents Available |
| 31 | Program Not Found |
| 32 | Invalid Drive Number |
| 34 | Attempt To Use Non Program File As a Program |
| 35 | Memory Fault During Program Load |
| 36 | **Undefined Error Code** |
| 37 | File Access Denied Due To Password Protection |
| 38 | IO Attempt To Unopen File |
| 39 | Invalid Command Parameter |
| 40 | File Already In Directory |
| 41 | Attempt To Open File Already Open |

Disk BASIC Functions

CVD(str) Converts to double-precision after GET.
A# = CVD (GRSPAY\$)

CVI(str) Converts to integer after GET.
PRINT CVI (I1\$)

CVS(str) Converts to single-precision after GET.
FK = CVS (T\$)

EOF(b) End-of-file detector for buffer b.
IF EOF (3) THEN CLOSE 3

INSTR(pos, mainstr, substr) Returns number which indicates the position of the main string where the substring begins. If substring not in main string, zero is returned. If pos is omitted, pos = 1.
PRINT INSTR (S\$, "VA") X = INSTR (S\$, Q\$)
Y1 = INSTR (8, S\$, Q)

LOC(n) Gets current record number.
PRINT LOC (1)

LOF(n) Determines number of last (highest-numbered) record in specified file.
Y = LOF (5)

MKDS(x) Makes double-precision number ready for disk write (random access).
LSET AVG\$ = MKD\$ (3000, 00001)

MKI\$(n) Makes integer number ready for disk write (random access).
LSET AVG\$ = MKI\$ (3000) LSET Y\$ = MKI\$ (YZ)

MKSS\$(x) Makes single-precision number ready for disk write (random access).
LSET AVG\$ = MKS\$ (3000, 1) LSET M\$ = MKI\$ (N)

USRn(x) Calls any one of up to 10 machine-language sub-routines, n = 0-9. If n is omitted, zero is used. See DEFUSRn.
X = USR0 (T1) F = USR7 (Y)

Disk BASIC Statements

- CLOSE** Closes all open file-buffers or specified buffer(s).
 CLOSE CLOSE 1,2,8 CLOSE N
- CMD "A"** Returns to TRSDOS on error.
 CMD "A"
- CMD "B"** Enable/Disable (BREAK) key.
 CMD "B", "ON" CMD "B", "OFF"
- CMD "C"** Deletes program remarks (R) or spaces (S).
 CMD "C", R CMD "C", S CMD "C"
- CMD "D"** Displays directory for specified drive.
 CMD "D", L
- CMD "E"** Displays previous TRSDOS error.
 CMD "E"
- CMD "I", command** Executes a command to TRSDOS; may overwrite BASIC.
 CMD "I", "HELP"
- CMD "J"** Changes calendar date from *source* to *destination*.
 mm/dd/yy can be changed to ddd/yy — yy/ddd can be changed to mm/dd/yy
 CMD "J", "08/12/81", D\$
 CMD "J", "-64/201", D\$
- CMD "L", routine** Loads Z-80 routine or program file into RAM.
 CMD "L", JOBFIL
- CMD "O", x, array (start)** Alphabetizes (sorts) contents of an array. *x* is the number of items to be sorted; *start* is where the sorting process begins.
 CMD "O", 50, A(1)
- CMD "P", status** Checks printer status. *status* is a string variable.
 CMD "P", X\$
- CMD "R"** Turns real-time clock display ON.
 CMD "R"
- CMD "S"** Returns control to TRSDOS.
 CMD "S"
- CMD "T"** Turns real-time clock display OFF.
 CMD "T"
- CMD "X", target** Cross-references program lines and line numbers. *target* can be a reserved word, string, or string variable.
 CMD "X", GOTO CMD "X", "PRINT"
- CMD "Z"** Simultaneous output to Printer and Display (dual routing).
 CMD "Z", "ON" CMD "Z", "OFF"

- DEFN** Defines a user-created function.
DEF FNA\$(X)=STRING\$(X,45)
- DEFUSRn** Defines entry point for machine-language sub-routine called by USRn. If n is omitted, zero is used.
DEFUSR=&H5500 DEFUSR4=&H7D7E
- FIELD** Organizes a random file buffer into fields
FIELD 3,16 AS NM\$,25 AS AD\$
- GET b, record number** Gets specified or next record from a disk file (random access); stores it in buffer b.
GET 1 GET 1,25
- INPUT #b** Inputs data from buffer b (sequential access).
INPUT #1,A,B
- KILL** Deletes a disk file.
KILL "PRG/BAS" KILL "FILE:1"
- LINE INPUT** Line inputs from keyboard; (ENTER) ends input.
LINE INPUT A\$ LINE INPUT "ENTER YOUR NAME?" ;N\$
- LINE INPUT #** Line inputs from disk into specified buffer; carriage return, end-of-file, 255th character ends input.
LINE INPUT #1,A\$
- LOAD** Loads program file from disk. R option causes program to run, leaving open files open.
LOAD "PRG/BAS" LOAD "PRG:2",R
- LSET** Left-justifies data into a random access field.
LSET CITY\$="DULUTH"
- MERGE** Merges disk program with resident program. Disk program must be in ASCII format.
MERGE "PR/BAS"
- MID\$(old, pos, len)=repl** Replaces one portion of a string with another. If length option is omitted, same number of characters in the old string will be changed as the number of characters in the replacement string.
MID\$(A\$,3,4)="USAFX" MID\$(A\$,5)="01"
- NAME newline, startline, increment** Renumbers program line numbers. *newline* is the new number of the first line which is to be renumbered. If omitted, 10 is used. *startline* is the line number where renumbering is to begin. If omitted, entire program will be renumbered. *increment* is the increment between successive renumbered lines. If omitted, 10 is used.
NAME 100,10,100 NAME NAME,5
- OPEN mode, b, file, n** Opens file; assigns mode (I=input, O=output, R=random, E=Output to end-of-file); assigns buffer number b, file specifies filename; n specific number of files.
OPEN "R",1" CLIENTS.TXT"
- PRINT #b** Writes data to file-buffer b (sequential access).
PRINT #1,A

PUT *b*, record number Moves data from file-buffer *b* into the specified record (random access). If record number is omitted, current record number is used.

PUT 1,25 PUT 1 PUT C,N

RSET Right-justifies data into a random access field.

RSET CITY\$- "SPOKANE"

RUN program Loads and executes disk program. R option leaves open files open.

RUN "PRG/BAS" RUN "PRG:1", R

SAVE filename Saves BASIC program on disk. A option causes file to be stored in ASCII format.

SAVE "FL1/BAS:3" SAVE "PRT/TK1", A

Disk BASIC Debug Monitor Commands

- D** Displays memory contents.
D ADDRESS? = *aaaa* where *aaaa* is a hexadecimal number.
- X** Half-screen display.
- S** Full-screen display.
- M** Modify RAM. M ADDRESS? = *aaaa* where *aaaa* is a hexadecimal number.
- R** Change Register contents.
Raa,bbbb (SPACEBAR) where *aa* is one of the register pairs AF, BC, DE, HC, PC and *bbbb* is a hexadecimal value.
- I** Single-step.
- C** Single-step executing call.
- U** Up-dates display.
- +** Increment the first location on a half-screen display by 16; on full-screen, by 256.
- Decrement the first location on a half-screen display by 16; on full-screen, by 256.
- J** Jump the transfer of control from one location to another.
J ADDRESS? = *aaaa,bbbb* where *aaaa* specifies the hexadecimal location where execution begins and *bbbb* specifies the hexadecimal location of the breakpoint.
- Q** Quits or exits from debug.
- F** Disk file utility which allows you to load disk file into memory and change it.

Disk BASIC Error Codes

| | |
|----|--------------------------|
| 51 | Field Overflow |
| 52 | Internal Error |
| 53 | Bad File Number |
| 54 | File Not Found |
| 55 | Bad File Mode |
| 58 | Disk I/O Error |
| 62 | Disk Full |
| 63 | Input Past End |
| 64 | Bad Record Number |
| 65 | Bad File Name |
| 67 | Direct Statement in File |
| 68 | Too Many Files |
| 69 | Disk Write-Protect |
| 70 | File Access |

Disk BASIC Abbreviations & Special Characters

| | |
|---------------|--|
| &H | Indicates following number is a hexadecimal constant. |
| &O | Indicates following number is an octal constant. |
| ↑ | Lists previous line. |
| ↓ | Lists next line. |
| ○ | Lists current line. |
| □ | Edit current line. |
| (SHIFT) ↑ | Lists first line. |
| (SHIFT) ↓ (2) | Lists last line. |
| Lxx | List line xx. |
| Exx | Edit line xx. |
| Dxx | Delete line xx. |
| Axxx, xxx | Automatic line numbering beginning at line xxx, incrementing by xxx. |